

# the FELIX Letter

A COMMENTARY ON NUTRITION

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1999

## THE SUNSHINE VITAMIN

**A** Woman Who Left Her Wheelchair, a case history in the March 6th (1999) British medical journal *THE LANCET*, is a shining example of what good medicine can accomplish, following a botch job via the unenlightened kind. Doctors G. Mingrone, A.V. Greco, and G. Gasbarrini of Rome's Catholic University School of Medicine first saw the 32-year-old woman in December 1996, when she was admitted to the hospital for "progressive muscular weakness of her legs and diffuse skeletal pain. She went about on crutches or in a wheelchair."

Two years earlier when her right leg first became weak and painful, physicians at another hospital had done nerve conduction and other neurological studies. They found a partial disc protrusion of her lumbar spine, but no sensory or motor disturbances, or muscle atrophy.

Tests showed moderately low blood levels of phosphorus but normal levels of calcium and magnesium. She had iron-deficiency anemia, for which intravenous iron-dextran was given. That seems to be the extent of treatment.

"During the next two years, her symptoms progressively worsened." When phosphorus was administered, a bone scan by the first hospital showed high uptake throughout her bony skeleton. "No specific diagnosis was made."

Darn it, no clues. Case dismissed.

## A Fresh Viewpoint

Enter Drs. Mingrone et al. December 1996. They actually believed it *could be important* that this 32-year-old had been treated with steroids since the age of 21 for Crohn's disease; and that a large diseased section of the ileum, the lower part of her small intestine, had been surgically removed perhaps 6 or 7 years before.

"When more than 1 meter [9/10ths of a yard] of ileum is resected, bile-salt loss in the stool can be considerable, resulting in steatorrhea..." Without bile salts to help digest fats, undigested fats leave the body in the form of bulky, greasy, smelly stools. (Sorry to offend, folks, but this is medical stuff, important.) Indeed, this was one of the young woman's longstanding complaints. Clearly, it rang no bells for the earlier medicos. Maybe they thought it was all in her head??

New tests showed even lower blood phosphorus than the first hospital's readings. Now we get to some truly creative testing. *They found her concentration of 25-hydroxyvitamin D3 to be at the bottom of the chart -- almost non-existent.*

Another test using a marker of bone breakdown showed she was losing a lot of bone. Inevitably, dual-photon absorptiometry revealed very low mineral density in her bones.

Her new doctors concluded from the evidence that this young woman was suffering from osteomalacia (softened

bones) *caused by inability to absorb vitamin D.* Bow-legged and pigeon breasted kids suffering from rickets, i.e., osteomalacia, used to constitute a big problem in northern cities, before cod liver oil, rich in vitamins A and D (also omega-3s, as yet unknown), was employed on a big scale. We have to have vitamin D to absorb both calcium and phosphate from the intestines, and to mineralize our bones properly.

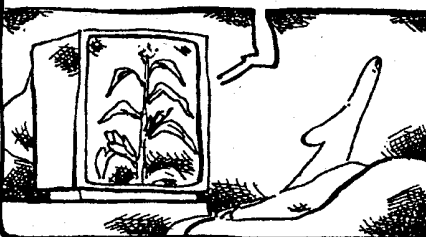
And why wasn't she absorbing vitamin D? It's a *fat-soluble vitamin, like A, E, and K.* Her inability to absorb it, the doctors explain, was caused by "selective fat malabsorption occurring after small bowel resection."

The low blood phosphorus, they believe, was a consequence of this same steatorrhea, because this condition can induce phosphorus loss in feces. Steatorrhea contributed as well to major losses of calcium by this route.

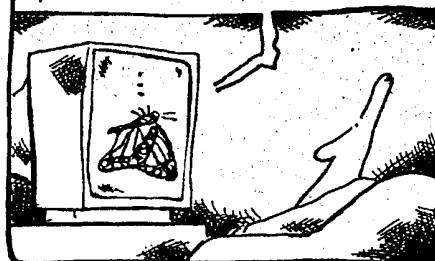
Apparently, loss of vitamin D's crucial actions over the years had led to a state of chronic, then accelerated, breakdown (resorption) of bone.

While resorption into the blood resulted in "normal" blood levels of calcium and magnesium, the bones themselves were turning to mush! (The "Before" bone

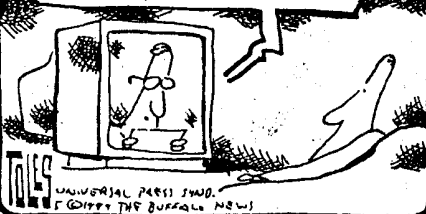
A NEW GENETICALLY ENGINEERED FORM OF CORN NOW BEING PLANTED EXTENSIVELY IN THE UNITED STATES...



... PRODUCES A WIND-BORNE POLLEN THAT CAN KILL MONARCH BUTTERFLIES.



THIS IS LIKELY TO BECOME PART OF THE DEBATE WHETHER GENETICALLY ENGINEERED CROPS CAN HAVE UNFORESEEN CONSEQUENCES ON THE ENVIRONMENT.



DIDN'T YOU JUST ANSWER THAT QUESTION?



scan pictured actually shows bowing of the long bones in her thighs and legs.)

The doctors point out that osteomalacia can occur in patients who suffer from intestinal malabsorption, a prime example being celiac disease where intolerance to gluten proteins primarily in wheat, rye, and barley leads to diminished digestion and absorption.

Not many physicians look to nutrition for clues; they're not trained that way. Because these exceptional doctors did, here's the happy ending:

They gave the young woman 1,25-dihydroxyvitamin D3 and calcium, by injection to bypass her compromised digestive system. "...phosphate-rich food low in fat (meat, fish, liver, and root vegetables) was recommended. After 3 weeks she could walk again, and muscle weakness and bone pain had disappeared. Her total body scan was normal...in October, 1997," less than a year after they began treating her.

Believe it or not, in the "After" bone scan photo, her bowed long bones had straightened out!



### A Fresh Look at Vitamin D

The May *Am J Clinical Nutrition* (1999; 69; pp842-856) has a standout review on the urgent, documented need to increase the RDA for vitamin D. We're designed by evolution to get it from the sun's ultraviolet rays. Nowadays, not too many of us run around nekkid 'neath blue tropical skies, yet everyday foods don't provide enough D. Dr. Reinhold Vieth of the University of Toronto and Mount Sinai Hospital in Toronto says the best objective criterion for vitamin D nutritional status is a person's serum concentration of the metabolite 25-hydroxyvitamin D [25(OH)D], which should be at least 100 nanamoles per liter. Depending on a person's exposure to sun, this can be achieved by either sunlight, supplements, or both. "The objective of vitamin D

supplementation," he writes, "should be to compensate for insufficient ultraviolet light exposure."

What are some of the problems we get with lower concentrations? Osteomalacia (softened bones; in children it's called rickets) comes with a severe deficiency, i.e., less than 20-25 nmol/L. Concentrations between 25 and 40 nmol/L of 25(OH)D reflect marginal deficiency, showing up as *elevated parathyroid hormone with bone loss leading to osteoporosis. These low concentrations are common in northern latitudes.*

The RDA (200 IU for adults) generally leads to too-low 25(OH)D unless individuals get lots of warm sun -- and not just on their hands and face. [See intriguing connection to hypertension below.] It seems that people exposed to sun much of the year in warmer latitudes always have 25(OH)D concentrations above 100 nmol/L.

Vieth says that to achieve a desirable (above 100 nmol/L) concentration, total vitamin D supplied by both diet and sunlight needs to be 4000 IU a day. Clearly, for indoor folks far from the equator, most of it would have to come from supplements.

### Unsubstantiated Toxicity Scares

For decades now, official standard-setters have resisted raising the RDA. But Vieth and others say vitamin D toxicity danger is grossly overblown. One of its manifestations -- abnormally high blood calcium (hypercalcemia) -- always is accompanied by 25(OH)D concentrations higher than 220 nmol/L.

He writes: "Throughout my preparation of this review, I was amazed at the lack of evidence supporting statements about the toxicity of moderate doses of vitamin D. Consistently, literature citations to support them have been either inappropriate or without substance."

Frank and Ernest/Bob Thaves



### Convincing Arguments

There are attractive payoffs for getting enough vitamin D, one way or another, into our bodies. For starters, higher serum 25(OH)D concentrations are associated with *lower rates of breast, ovarian, prostate, and colorectal cancers.* Also, there is "impressive circumstantial evidence that multiple sclerosis is more prevalent in populations having lower concentrations of vitamin D or ultraviolet exposure," Vieth writes; also that higher intakes may help to prevent the disease.

Encouraging studies on vitamin D nutritional status in relation to arthritis have led researchers to *recommend that persons with osteoarthritis of the knee make sure their serum 25(OH)D exceeds 75 nmol/L.*

### UVB Rays & Blood Pressure

Prevalence of high blood pressure in populations is known to increase with distance away from the equator. A *Lancet* report cited by Vieth (Aug 29, 1998, pp709-710) fascinated me as it's the first I've seen showing that whole-body irradiation with a UVB lamp for approximately 6 to 10 minutes, three times a week for 6 weeks, *lowered blood pressure significantly* in a group of mildly hypertensive women, ages 26 to 66. A similar group of women receiving the same treatment, but with a UVA lamp, had no improvement.

UVB irradiation, but not UVA, is known to affect vitamin D production. The UVB-exposed ladies whose hypertension was eased *showed a concomitant 162% jump in their 25(OH)D serum concentrations*, from an average of 57.6 to a new average of 151.2 nmol/L -- right up there in the desirable zone!

Also, their parathyroid hormone fell 15% -- a good sign. (The UVA ladies showed a slight rise in 25(OH)D, but the new average was still a paltry 45.6 nmol/L and their parathyroid hormone level was unchanged.)

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9-23  
THAVES



*Hmmm...it might not be a bad idea to include serum 25(OH)D during routine checkups.* Arthritis and hypertension are *so* common in our older population -- could there be a vitamin D connection?

So, folks, soak up good rays whenever you can. It's okay to protect your face with sunscreen, but try to let as much as possible of the rest of you hang out. And if that's not a frequent enough option, get your D from a bottle. Dr. Michael F. Holick, one of the UVB study's authors, in 1994 had recommended tripling the RDA for adults to 600 IU. In *Felix Letter* No. 85 in 1995, I quoted Dr. Carl Reich's letter telling me: "See that you get around 2,000 to 3,000 IU of D. In the late 1980s the U.S. Research Council indicated that toxicity due to vitamin D only begins when one takes more than 50,000 IU. When polar explorers got 8.0 million units of D and an awful lot of A by eating polar bear liver, they lost their hair and suffered exfoliative dermatitis but didn't die!!" □

## WATCH IT, FOLKS, PLEASE!

Small doses of aspirin have become increasingly trendy, in medical literature and in everyday clinical practice, as a nifty, safe, inexpensive way to lessen risk of heart attack.

Biochemists unraveled some of the mystery of how aspirin works only after fatty acid research got sophisticated enough to demonstrate that our bodies could make a whole cascade of molecules from omega-6 arachidonic acid: prostaglandins, prostacyclins, thromboxanes, leukotrienes, etc., all having regulatory roles in just about every bodily function. We make thromboxane as an emergency response to injured blood vessels, but too much thromboxane may lead to inappropriate clumping of blood platelets and potentially damaging thrombi, or blood clots. Aspirin, it turns out, inhibits an enzyme needed by the body to make thromboxane.

Sounds logical, doesn't it? A little aspirin every day, less thromboxane to screw up your arteries, less danger of heart attack?

Nature however has its own agenda.

A *very* healthy friend, "Herb," in his late 70s -- active in his profession, strong tennis player, hiker, gardener -- had a routine checkup which confirmed he was in top form. Just to be 'on the safe side' his longtime physician started

him on *one baby aspirin a day* ( 81 mg). About six weeks later Herb began having symptoms unusual for him: shortness of breath, loss of appetite, and finally tarry stools. This was scary; he guessed the latter meant bleeding somewhere in his gut. He'd never had digestive problems, ate a wholesome diet, stayed fit and, guided by his savvy wife Margaret, took antioxidants, vitamins, minerals. (Ahem: they read *The Felix Letter*.) One morning Herb upchucked his breakfast violently. He was also experiencing something new for him: weakness, worse every day. Without telling Margaret he checked himself into the hospital emergency room.

Tests showed a precipitous drop in blood count since his checkup. His doctor put him in the hospital, Herb was given two pints of blood, and Margaret was called. Other tests and finally an endoscopy were performed (He said it's a mighty uncomfortable procedure requiring sedation as the endoscope is snaked down the throat into the esophagus.) It revealed a flat, benign stomach ulcer that had never given him pain but had caused the big loss of blood. After a few days on intravenous saline solution, Herb was able to eat, and soon was home again.

Then, of course, his doctor had him take a drug to stop stomach acid production so the new ulcer could heal!

Two months later, Herb's ulcer is gone, he's off the acid inhibitor and back to robust health.

Here's the one good thing about this iatrogenic disaster: his doctor, really a good guy, *apologized*. He told Herb a little sheepishly that aspirin does this sometimes.

## Here's the Scoop, Folks

Aspirin doesn't do this sometimes; it does it a lot. All the NSAIDS (nonsteroidal antiinflammatory drugs) that work by inhibiting the thromboxane-making enzyme *also inhibit a prostaglandin that nature thoughtfully has us make to protect the stomach's lining from being chewed up by its own acid*. Each year there are thousands of hospital admissions of persons with bleeding ulcers or gastrointestinal hemorrhage that develop after regular use of NSAIDS, most often taken to ease arthritic discomfort. Now



hospitals can expect an additional crowd with the same problems -- the people whose doctors are saving them from heart attacks.

### A Better Way

Not only ulcer-proof but *delectable* ways to curb thromboxane come directly from Nature's Table. Thanks to superb research just over the last twenty years, we've learned, even though the AMA may not have, *that omega-3 fatty acids do a reliable job of keeping one's thromboxane population from running amuck.* That's merely one way the foods we evolved on, such as fish and shellfish, serve to protect us. (A spoon of ground flaxseed a day helps to subdue thromboxane, too.) Then, of course, there are the myriad life-giving elements in vegetables, fruits, roots, seeds, nuts, berries, and flesh foods to keep arteries and veins supple and heart muscles sturdy.

Early on, nature supplied every molecule we needed to thrive as a species. Heart attacks simply were not on the agenda. If modern medicine's half-baked attempts to prevent them are unleashing a flurry of bleeding ulcers, you can bet it isn't nature that's screwing up. □

### CORN & BUTTERFLIES

**T**he *Lancet* is the only non-alternative medical journal to which I subscribe, although I peruse others in UC Berkeley's libraries, but one editorial, "Health risks of genetically modified foods," May 29, 1999, just about made the subscription cost worthwhile. In Europe and the UK a storm of public protest and, more to the point, *boycotting* of genetically modified food products, resulted in seven European supermarket chains announcing in May they would not sell genetically modified foods. "Three large food multinationals, Unilever, Nestle, and Cadburys-Schweppes followed suit. The Supreme Court in India has upheld a ban on testing [i.e., growing] genetically modified crops. Activists in India have set fire to fields of crops suspected of being used for testing."

**T**he motive, the editorial says, of promoters like Monsanto "is profit, not altruism...In view of this unbridled commercial approach to genetic modification, it is perhaps not surprising that companies have paid little evident

Peanuts/Charles M. Schulz



attention to the potential hazards to health...But it is astounding that the US Food and Drug Administration has not changed their stance... adopted in 1992...that genetically modified crops will receive the same consideration for potential health risks as any other new crop plant."

**I** guess the *Lancet* editor thinks we're a bunch of sheep here. "The population of the USA, where up to 60% of processed foods have genetically modified ingredients, seem, as yet, unconcerned," the editorial notes.

**M**aybe the report in May by Cornell University entomologists will be a wake-up call. Apparently, toxic pollen from Monsanto-designed Bt corn that's been infused with genes from designated bacteria is killing not just the targeted corn borer, but the larvae of monarch and queen butterflies too. The May 20 *S.F. Chronicle* article says the implications "of the study are ominous. Half of North America's eastern monarch butterfly population is concentrated in the 'corn belt.' And about 20 percent of the U.S. corn crop...is planted in bioengineered Bt corn, a figure that grows every year."

**B**ioengineered corn or soy products are everywhere, in baby foods and soy infant formula, too. On June 17th in Washington DC, Mothers for Natural Law sponsored a "National Summit" on genetically engineered foods. Participants included researchers, religious leaders, business people, consumers. In *FL#102*, I wrote that Robin and Laura Ticciati's illuminating little book *Genetically Engineered Foods* (1998, Keats Publishing) was available for \$6 from nonprofit Mothers for Natural Law, P.O. Box 1177, Fairfield, Iowa 52556. I've since been informed it's \$7.95 to include mailing costs. They have a newsletter, too, and an Internet site: [www.safe-food.org](http://www.safe-food.org)

### Beefy Growth Hormones

**T**he same *Lancet* issue reports that the European Union (EU) told the USA on May 13 that it was *not* lifting its ban on US beef grown with hormones, "despite being ordered to by the World Trade Organisation or to risk trade sanctions....90% of US beef is produced using a combination of up to six growth hormones, which have been banned in the EU since 1989."

**M**aybe we here *are* a bunch of sheep! What apparently works for people in Europe and the UK is economic clout through massive consumer boycotts. Have you a better idea on how to touch the cash-register hearts of the sharks at the top of the bioengineered food chain???

E. NEEDHAM '98



CLASSIC CASE--THE OLD FLAME HAS GONE OUT.

## BRAVE NEW OMEGA-3 & OMEGA-6 GUIDELINES

Some of the best fatty acid scientists from all over the globe got together in April for a three-day workshop at the National Institutes of Health (NIH) in Bethesda, Maryland, to hammer out guidelines for dietary intakes. This was truly bigtime, with participants from the NIH, US Dept. of Agriculture, World Health Organization, the UN's Food & Agriculture Organization, industry representatives, etc. I got a hot fax from Dr. Artemis Simopoulos, distinguished researcher and president of the Center for Genetics, Nutrition & Health in Washington DC (one of the sponsors) asking me to share workshop recommendations with *Felix Letter* readers, which I'm honored to do -- of necessity in simplified, abridged form

### Motivation

"The workshop participants consisted of investigators of the role of essential fatty acids in infant nutrition, cardiovascular disease, and mental health. The first two areas were selected because they are the ones where extensive studies involving animal models, clinical intervention trials, and biochemical and physiologic mechanisms and their function have been carried out relative to omega-6 and omega-3 fatty acids.

"The role of essential fatty acids in mental health is a new, but promising research area."

### Groundbreaking Advice

"One recommendation deserves explanation here. After much discussion consensus was reached on the importance of reducing the omega-6 polyunsaturated fatty acids (PUFAs), even as the omega-3 PUFAs are increased in the diet of adults and newborns *for optimal brain and cardiovascular health and function*. [Emphasis mine.]

"This is necessary to reduce adverse effects of excesses of arachidonic acid and its eicosanoid products [prostaglandins, thromboxanes, leukotrienes, etc.]. Such excesses can occur when too much LA and AA [omega-6 linoleic and arachidonic acids] are present in the diet and an adequate supply of dietary omega-3 fatty acids is not available.

"The adverse effects of too much arachidonic acid and its eicosanoids can be avoided by two interdependent dietary changes. First, the amount of plant oils

rich in LA, the parent compound of the omega-6 class, which is converted to AA, needs to be reduced.

"Second, simultaneously the omega-3 PUFAs need to be increased in the diet. LA can be converted to arachidonic acid, and the enzyme, delta-6 desaturase, necessary to desaturate it, is the same one necessary to desaturate LNA [alpha-linolenic acid], the parent compound of the omega-3 class. Each competes with the other for this desaturase."

### Combating Omega-6 Oil Glut

"The presence of LNA in the diet can inhibit the conversion of the large amounts of LA in the diets of Western industrialized countries which contain too much dietary plant oils rich in omega-6 PUFAs (e.g., corn, safflower, and soybean oils).

"The increase of LNA, together with EPA and DHA [all omega-3 PUFAs], and reduction of vegetable oils with high LA content, are necessary to achieve a healthier diet in these countries."

Now to the recommendations, first for adults. Incidentally, the working group "recognized that there are not enough data to determine Dietary Reference Intakes (DRI), but there are good data to make recommendations for Adequate Intakes (AI) for Adults," as well as for Infant Formula/Diet.



**Table 1**  
**Adequate Intakes for Adults**

| Fatty Acid                               | Grams/d<br>2000 kcal | % Energy   |
|--|----------------------|------------|
| w6 LA<br>(Upper limit) <sup>1</sup>      | 4.44<br>6.67         | 2.0<br>3.0 |
| w3 LNA                                   | 2.22                 | 1.0        |
| w3 DHA<br>+EPA                           | 0.65                 | 0.3        |
| DHA to be<br>at least <sup>2</sup>       | 0.22                 | 0.1        |
| EPA to be<br>at least                    | 0.22                 | 0.1        |
| Trans-fats<br>(upper limit) <sup>3</sup> | 2.00                 | 1.0        |
| Saturates<br>(upper limit) <sup>4</sup>  | ---                  | <8.0       |
| Monounsaturates <sup>5</sup>             | ---                  | ---        |

1. Although the recommendation is for AI, the Working Group felt there is enough scientific evidence to also state an upper limit for LA of 6.67 grams/day based on a 2000 kcal diet or of 3.0% of energy.

2. For pregnant and lactating women, ensure 300 milligrams per day of DHA.

3. Except for dairy products, other foods under natural conditions do not contain trans-fatty acids. Therefore, the Working Group does not recommend trans-fats to be in the food supply as a result of hydrogenation of unsaturated fatty acids, or of high temperature cooking (reused frying oils).

4. Saturated fats should not comprise more than 8% of energy.

5. The Working Group recommended that the majority of fatty acids are obtained from monounsaturates. [Felix note: The body easily makes monounsaturates from saturated fat, whenever it needs more.]

### Pregnancy and Lactation

"For pregnancy and lactation, the recommendations are the same as those for adults with the additional recommendation seen in footnote 2 (Table 1) that during pregnancy and lactation women must ensure a DHA intake of 300 mg/d."

### Composition of Infant Formula/Diet

"It was thought of utmost importance to focus on the composition of the infant formula considering the large number of premature infants around the world, the low number of women who breastfeed, and the need for proper nutrition of the sick infant. The composition of the infant formula/diet was based on studies that demonstrated support for both the growth and neural development of infants in a manner similar to that of the breastfed infant (Table 2)."

**Table 2**  
**Adequate Intake for Infant Formula & Diet**

| Fatty Acid                           | % of Fatty Acids |
|--------------------------------------|------------------|
| w6 LA <sup>1</sup>                   | 10.00            |
| w3 LNA                               | 1.50             |
| w6 AA <sup>2</sup>                   | 0.50             |
| w3 DHA                               | 0.35             |
| w3 EPA <sup>3</sup><br>(Upper limit) | <0.10            |

1. The Working Group recognizes that in countries like Japan, the breast milk content of w6 LA is 6-10% of fatty acids and the DHA is higher, about 0.6%. The formula/diet composition described here is patterned on infant formula studies in Western countries.

2. The Working Group endorsed the addition of the principal long chain polyunsaturates, w6 AA (arachidonic acid) and w3 DHA, to all infant formulas.

3. w3 EPA is a natural constituent of breast milk, but in amounts more than 0.1% in infant formula may antagonize AA and interfere with infant growth.

### A Principled Position

Hats off to the Working Group for its landmark summary statement!

Although "the views expressed in this statement do not reflect any official position of the U.S. Department of Health and Human Services," they *do* reflect the convictions of the scientists who formulated it -- many of them my heroes and heroines in the long, sometimes bitter battles in the fatty acid trenches. Thank you, all!

In the light of these struggles, two points have special meaning. *First, the Working Group has proposed an optimal ratio of 1.5 to 1, for intake of omega-6 linoleic acid to omega-3s* (see Table 1, AI for Adults). The suggested upper limit of 6.67 grams/d of LA increases the ratio to 2 to 1. Compare this with today's 10 to 1 or even 20 to 1 ratio -- an unnatural one that's targeted by the Group as a major fomenter of health problems.

*Second, they recommend that all infant formulas contain w3 DHA -- crucial for proper brain development, along with w6 AA. Mother's milk, of course, has both.*

Infant formula manufacturers in Europe and Asia have added DHA to their products. U.S. formula makers haven't: the Food and Drug Administration won't allow it. Thereby hangs a tale.

I was alerted to this latest chapter by Marc Kaufman's insightful summary in the June 6 *Oakland Tribune*, originally in the June 1st *Washington Post*. DHA, he explains, is accumulated in the infant's brain and retina of the eyes most rapidly between the third trimester of pregnancy and 18 months after birth.

We've learned this only because of the work in the late 1960s and early 1970s of scientists like Claudio Galli of Milan and Michael A. Crawford of London. As I've

stated in a number of *Felix Letters*, no textbook or lecturer at UC Berkeley when I was a 1975-1977 reentry offered this information as yet.

I didn't learn until I read early papers by Galli, Crawford, Lars Svennerholm, Hugh M. Sinclair, Andrew J. Sinclair, N.G. Bazan and others, that DHA was the major unsaturated fat in brain and retina. The infant couldn't make DHA from scratch the way it could other fatty acids, because DHA's precursor was an "essential fat" -- it had to come from the diet -- in the case of the fetus, from omega-3s in the mother's diet and/or from omega-3s stored in her tissues.

### The Formula Panel

Faced with pressure to get DHA into formulas, the FDA said it would examine its safety and effectiveness, the review to begin in 1996 "under contract with the private, nonprofit Life Sciences Research Office, which set up the formula panel."

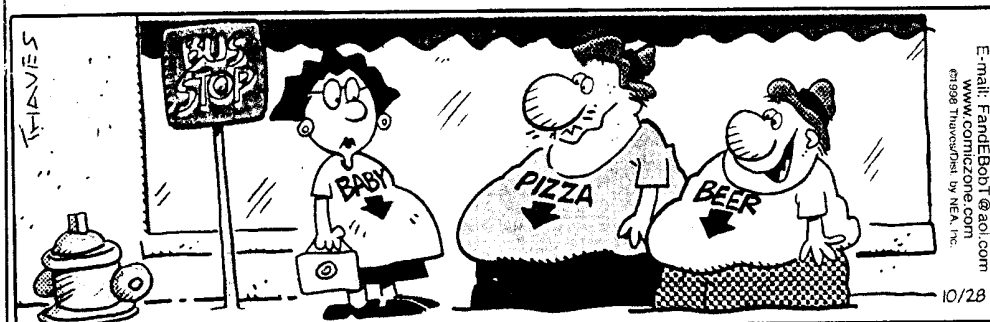
Last fall, the seven-member panel gave its recommendation: *that the FDA continue the ban on DHA for up to five more years.*

### Behold the Fatty Acid Mayven!

Kaufman continues: "In the middle of the dispute is University of British Columbia researcher Sheila Innis, the main fatty-acid expert selected for the formula panel. She has long urged great caution about adding DHA to formula, and she also has done considerable work for Ross." Ross Products of Columbus, Ohio, makes Similac. "Ross officials also point out that supplementing with DHA would be expensive." [Emphasis mine.]

I've read many of the pro and con research papers and there's no question in my mind that the evidence weighs mightily in favor of putting DHA in formula, if only to simulate its universal presence in healthy breast milk. Nature had a reason.

Frank and Ernest/Bob Thaves



When the panel held a public hearing in spring 1996, two of the three major US formula makers said DHA "should be allowed, though not mandated. But the third, Ross, was strongly opposed..."

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"Well before the public hearing, scientists had raised alarms about the presence of Innis on the panel," Kaufman writes. A number of scientists, including Norman Salem, a senior scientist with the National Institutes of Health who has done outstanding research in this field, "told the FDA they did not believe the panel could be objective with only one expert from the fatty-acid field," especially one who held such strong views.

### Back in 1995...

Now I'll tell -- rather, retell -- my story of Sheila M. Innis, Ph.D. In June of 1995, I attended the 4-day ISSFAL (International Society for the Study of Fatty Acids & Lipids) Congress at the NIH in Bethesda -- a sparkling occasion for me because I was face to face with my heroes and heroines who had been just names to me on correspondence or research studies.

Innis was the next-to-last speaker of the day at a major workshop. The co-chair, Dr. Michael Crawford, who had flown in from London, was to be the last; all of us in the large audience were anticipating this, his only talk. At Queen Elizabeth Hospital for Children, he's discovered as much firsthand about the effects of omega-3 fatty acid deprivation "on brain development in preterm babies as anyone on earth." [*Felix Letters* 83&84, 1995.]

The evening's speakers had been cautioned repeatedly to keep their presentations to the allotted time because the auditorium, by strict NIH regulations, had to be emptied at 9:05. Innis went to the podium. I wrote in 1995: "She is a small, fine-boned woman with the dainty manner of a wren but the tenacity, it turns out, of a pit bull...Preterm (and full-term) babies on breast milk, according to *her* assembled studies, didn't have any better 'developmental outcomes' than babies on standard formulas, i.e., those without AA and DHA. Therefore let's not be in a hurry to rock the existing formula boat.

"In other words, since human milk is no great shakes, what's the point of making formula that comes closer to it!

"While Dr. Innis had the credentials and the right to present her views, she *didn't* have the right to swallow up all of Dr. Crawford's speaking time..." Which she did. Afterwards, he took the microphone to say quietly he'd skip his talk to allow time for general discussion.

"Innis took her seat in the row behind me. She had a complacent smile on her face."

### She Played Dirty Pool

It was a smirk, actually. From Marc Kaufman's article: "The company [Ross] had supported her lab with some grants and formula, and she had worked with Ross scientists on several studies as well....Thomas Clandinin of the University of Alberta in Canada, an early pioneer in fatty-acid research and Innis' dissertation professor in graduate school, wrote the FDA, charging that the seven-member panel was not 'expert' or 'balanced' in the area of fatty acids. 'If you put someone on the committee that is working with the segment of the industry that is absolutely against adding these fatty acids to their product, you can pretty much predict the result,' Clandinin said recently."

WHAT WE NEED  
IS A PSYCHIATRIST  
WHO LOVES  
MAJOR CHALLENGES.



### Will the FDA Take A Longer View?

The medical and scientific world is beginning to take omega-3's seriously as their basic role in maintaining health becomes increasingly clear. Even the psychiatric people are paying attention to well-based new studies on possible relationships of depression, bipolar disorder, schizophrenia, even inappropriate aggression, to widespread

omega-3 deficiencies. Could these deprivations have something to do as well to the burgeoning numbers of kids who grow up suffering from attention deficit disorder and hyperactivity? Far fewer mothers are breastfeeding (they're all working).

Peerless nutrition writer Beatrice Trum Hunter sent me this report derived from the April '99 *J. of Ambulatory Pediatric Society*:

"Infants given formula are more likely to need physician care and drugs than those who are breastfed...These findings are significant because they quantify the cost of not breastfeeding, said the co-author, Anne Wright. 'Our work at the University of Arizona, as well as that of other researchers, has shown that breastfed infants have lower incidence of illness. This may be the first to attach a price tag to not breastfeeding.'

"When 1,000 never-breastfed babies were compared to 1,000 babies who had been exclusively breastfed for three or more months, the research found 2,033 excess office visits, 212 excess days of hospitalization, and 609 excess prescriptions for three common illnesses..."

I wonder if Sheila Innis or the Ross execs have bad dreams at night. Shucks, with their teflon consciences, they probably sleep like breastfed babies.

### I'M BLUSHING

Readers know I nevvver mayke Rmisteaks. Although it must have been a gremlin who loused up my carnitine figures in *FL#102*, I'll magnanimously take responsibility, so cross out or ignore the last paragraph in that issue. Here's the right stuff:

Flesh foods are the best sources, e.g., beef contain 95 milligrams, pork about 28 mg of carnitine per 100 grams (3.5 oz). Chicken and fish have less: about 4 to 6 mg carnitine per 100 grams. Dairy products have even less: about 1 to 4 mg. Grains are lower yet in carnitine; while veggies and fruits have barely discernible amounts, except, strangely, for cooked asparagus with almost 2 mg carnitine per 3.5 oz.

Your body can make carnitine if it has ample amounts of the precursor amino acids, lysine and methionine; if all needed enzymes are in working order; and if your diet supplies enough vitamin C, iron, niacin, and pyridoxal phosphate (the active form of vitamin B6) as cofactors to the enzymes. The process, apparently, is faulty often enough to warrant the appellation "conditionally essential nutrient" for carnitine. I seem to be growing younger and even more ravishing, if that were possible, on my 500 mg each of l-carnitine and acetyl l-carnitine before breakfast. □



#### CHROMIUM & DIABETES

A million years ago in *Felix Letter* No. 4 (actually it was 1982), I wrote about the essential trace mineral chromium -- how important it is for regulating blood sugar; and how it appears to work by making insulin more effective in getting your cells to take up optimal amounts of glucose and amino acids from the blood. Also, how meagre chromium is in most diets and why we need *more*, not less, to deal with the general tendency today to overeat on simple starches and sugars..

I bemoaned the fact that diabetes experts focus so heavily on drugs and so little on nonpatentable nutrients, like chromium, that work without side effects.

Lo and Behold! A mere 15 years later, *Diabetes* (1997; 46: pp1786-91) had a favorable report on a study done on 180 people with type 2 diabetes -- the commonest type that usually strikes adults. Chromium picolinate supplements, either 100 micrograms twice a day, or 500 micrograms twice a day, significantly improved fasting glucose values and lowered blood insulin -- a good sign in this type of diabetes where too much insulin keeps circulating in the blood as a response to chronically high blood sugar. The higher dose of chromium picolinate got earlier and better responses.

All in all, delightful results (compared to the placebo group), with no side effects.

As the years go by, potent diabetes drugs come on the market, then have to be dumped because of serious problems. But a doctor in New Zealand, commenting on the study by the Beltsville Human Nutrition Research Center in Maryland, said:

"I wouldn't recommend chromium supplements to my patients on the basis of this one study, but I will watch developments with interest."

If the cautious doctor expects drug companies to fund similar studies on this nonpatentable essential nutrient, he'd better not hold his breath waiting! □

#### FOR DEEP THINKERS ONLY!

*The Nature of the World*, a landmark work by Donald O. Rudin, M.D., just published by Core™ Books, is available for *serious* readers. No, it's not about omega-3s: it's about "Why every thing is and How everything will be!"

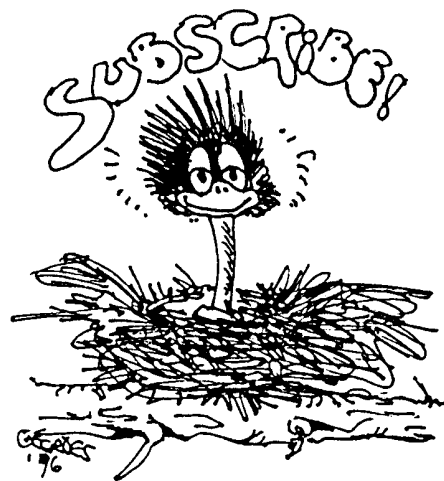
From the summary on the inside page:

"*The Nature of the World* informally presents a verified theory of the world -- the World Story. This is the ultimate intellectual goal and the top of the intellectual food chain. The theory is derived from lawfulness principles stated by the Hellenic Greeks when they initiated Western science nearly 3,000 years ago. Subsequent development of these principles now permits conventional science to construct a theory of knowledge. This theory turns out to be a statement of the universals of nature, knowledge and science.

"But it was never anticipated that they would provide a world program, generating, by rote, in the manner of Euclid's geometry, a Theory of the World. Also called the *General Theory of Evolution* or the *General Theory of Everything*, this sets the new standard for an educated person in the coming Age of Generalism..."

Dr. Rudin has been developing these concepts for 30 years, only setting them aside for a time while he pursued the vital story of the "missing" omega-3 fats beginning in the late 1970s. I just finished the first chapter and feel smarter already. Uh-oh! -- the feeling is fading fast; I'll have to re-read it.

*The Nature of the World* can be ordered from Core™Books Inc., Box 3362, Annapolis MD 21403. It's \$29.75 plus \$3.50 P&H. Maryland residents add 5% sales tax.



Illustrations are by the late Clay Geerdes and other artists as noted.

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